

## LITTER AND SEED PRODUCTION STUDIES

The techniques used at the Holt Research Forest to study forest productivity have changed over time. Initially we collected litter in 40 large seed traps throughout the forest in order to make estimates of forest biomass and seed production. For reasons discussed in the Evaluation, we have focused on seed production and eliminated biomass collection and have changed our techniques for seed collection to using smaller but more numerous traps throughout the forest.

Because the techniques that we no longer use may be useful in understanding why we changed methods and also may be of value at other research stations, we have included them here.

Following the Evaluation are four sets of instructions. Our current methods are detailed in "Instructions for Building Seed Traps" and "Seed Collection," while "Instructions for Litter Trap Construction" and "Litter and Seed Production" describe the methods we no longer use.

### Evaluation

These methods have undergone considerable change; litter collection and weight measurement has been dropped; the number of traps has increased and the location of the traps has changed. The original 40 litter traps (sample area=0.5m<sup>2</sup> each) have been replaced by 264 seed traps (sample area=0.042m<sup>2</sup>). Although the total area sampled is less, sampling occurs at a greater number of locations and provides data that are more directly tied to both small mammals and S-1s. Overall, this method of collection works best for those species that are wind dispersed. For species with heavy seeds (e.g., *Quercus* spp.), the number of seeds found is too dependent on the proximity of a tree to the trap.

Litter sorting was dropped because measurement of litter fall alone does not provide an accurate biomass production estimate. Secondly, the process of sorting litter into its many components was a formidable task and it was difficult to find the labor to do the work. The current methods work better because samples only need to be collected once per year, collecting the entire bag speeds up the collection process, and smaller samples are easier to sort. Maintenance of the traps and stations is also easier; bags seem to last longer because their exposure time is reduced and there are no wooden posts to deteriorate.